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EXAMINER	
MENDEZ, ZULMARIAM	

ART UNIT	PAPER NUMBER
1795	

NOTIFICATION DATE	DELIVERY MODE
01/02/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/822,424	BASOL ET AL.	
	Examiner	Art Unit	
	Zulmariam Mendez	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 December 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4-7,13,14,16-18,23-25,27 and 29-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *13-14, 16-18, 27, 29-34* is/are allowed.

6)☒ Claim(s) *1,4-7,23-25,36 and 37* is/are rejected.

7)☒ Claim(s) *35* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. The plurality of passages pass through the electrodes, not the isolators, and are partially defined by the isolators not by the electrodes as claimed (page 18, paragraph 0080; page 20, paragraph 0085). The examiner did not observe in the previously presented amendment, that claim 3 did not have support in the specification.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 4-7, 23-25, and 36-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adams et al. (US Patent no. 6,143,155).

With regard to claim 1, Adams discloses an apparatus for the simultaneous electrochemical metal plating and planarization of wafers (col. 1, lines 9-11) comprising: an electrode assembly configured to be immersed in a solution and configured to be positioned proximate to a conductive layer on a wafer in contact with said solution, the electrode assembly configured to have a longitudinal dimension extending to at least a periphery of a wafer (col. 4, lines 3-13), the electrode assembly including: a first elongated contact electrode/anode (510, see figure 7); a first isolator (550) including a side adjacent to the first elongated contact electrode/anode (510); a first elongated process electrode/cathode (570) including a side adjacent to an opposite side of the isolator (550) as shown in figure 7, the first isolator (550) protruding above top surfaces of the first elongated contact electrode/anode (510) and the first elongated process electrode/cathode (570); the electrodes (510 and 570) and the isolator are fastened together by a fastener/brush (595); the elongated contact electrodes/anodes (510) and the elongated process electrodes/cathodes (570) each include a plurality of grooves (520 and 580, see figure 7) extending through the elongated contact electrodes (510) and the elongated process electrodes (570), the grooves configured to allow a solution to flow through the electrode assembly (col. 10, lines 30-48; col. 4, lines 39-41 and 45-50); and a voltage supply (660, see figure 5) configured to apply a potential difference between the contact electrodes and the process electrodes (col. 8, lines 41-44) to plate or electro-polish the conductive layer of the wafer, wherein the isolators are

configured to prevent the contact electrodes and the process electrodes from physically contacting said wafer (col. 8, lines 11-13). Adams further discloses adding steps to the process through the use of multiple electrodes within the electrode assembly with the anode and cathode alternating, so that the process may be accomplished in a single pass of the assembly (col. 11, lines 39-49).

When adding additional electrode pairs to the apparatus of Adams, one of ordinary skill in the art would have been motivated to add an additional isolator between the two pairs to prevent any adjacent electrodes from shorting. An additional advantage of additional electrode pairs would be to increase overall plating rate because the additional electrodes would also perform electroplating and would increase the amount of current capable of being applied to the work-piece.

With regard to claim 4, the electrochemical apparatus of Adams further discloses adding steps to the process through the use of multiple electrodes within the electrode assembly with the anode and cathode alternating, so that the process may be accomplished in a single pass of the assembly (col. 11, lines 39-49).

With regard to claims 5 and 6, the electrochemical apparatus of Adams further comprising a mechanism configured to produce relative motion between the electrode assembly and a conductive layer on a wafer which provides electro-polishing of wherein motion of said wafer across the elongated process electrodes is configured to electro-polish substantially an entire surface of said conductive layer (col. 4, lines 13-20 and col. 12, lines 1-11).

With regard to claim 7, Adams further discloses wherein the mechanism is configured to produce rotational motion between the electrode assembly and a conductive layer on wafer (col. 11, line 67 and col. 12, lines 1-11).

With regard to claim 23, Adams teaches a fastener/brush (595) to maintain the electrode assembly fastened together but fails to teach wherein the fastener comprises a pin extending through transverse holes in the elongated contact electrodes, the isolators, and the elongated process electrodes. However, it is well known in the art that compression fitting the various parallel electrodes onto a bolt would have provided a stable, solid support for the electrodes to keep them from moving with respect to each other. Therefore, one having ordinary skill in the art at the time of the invention would have been motivated to provide bolts to the fastener (55) of Adams in order to add additional support to the electrode assembly and keep the electrodes from moving with respect to each other.

With regard to claims 24 and 25, Adams discloses having an insulator (550) separating contact electrodes/anodes (510) and process electrodes/cathodes (570) (col. 7, lines 61-67). Adams further discloses adding steps to the process through the use of multiple electrodes within the electrode assembly with the anode and cathode alternating, so that the process may be accomplished in a single pass of the assembly (col. 11, lines 39-49).

With regard to claims 36 and 37, Adams discloses wherein the insulators protrudes above the top surfaces of the elongate contact electrodes/anodes (510) and the elongate process electrodes/cathodes (570) wherein the isolators are configured to

prevent the contact electrodes and the process electrodes from physically contacting said wafer (col. 8, lines 11-13). Even though Adams doesn't explicitly disclose that the protrusion extends between about 1 and 10 mm or, specifically between 2-5mm, it has been held that where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. *In re Rose* , 220 F.2d 459, 105 USPQ 237 (CCPA 1955); *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); *In Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984). Also see MPEP 2144. Therefore, one having ordinary skill in the art at the time of the invention would have been motivated to modify the size of the insulators in the electrochemical apparatus of Adams in order to prevent the electrodes from physically contacting the conductive surface of the wafer.

Allowable Subject Matter

5. Claim 35 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Claims 13, 14, 16-18, 27, and 29-34 are allowed.

7. The following is a statement of reasons for the indication of allowable subject matter: the claimed invention requires a plurality of electrodes separated by insulation

members wherein the insulation members have compressible strips disposed above them, comprising a closed structure configured to prevent solution from flowing through the insulation members and the compressible strips. The closest prior art comprises a plurality of electrodes separated by insulation members having compressible strips disposed above them, but fails to teach wherein the compressible strips comprise a material having a closed pore structure. There was not found a teaching in the prior art suggesting modification of the conventional electro-polishing apparatus to obtain the apparatus of the instant application.

Response to Arguments

Claim Objections

8. The objection made to claim 4 has been withdrawn in view of Applicant's amendments.

9. Applicant's arguments with respect to claim 1, see page 10, have been considered but are moot in view of the new grounds of rejection.

10. Applicant's arguments see page 11, filed on December 6, 2007, with respect to claim 13 have been fully considered and are persuasive. The applicant argues that combining the Adams and Schimion references would render Adams inoperable for its intended purpose because a closed pore structure, as allegedly by Schimion, would prevent fluid from flowing throughout the system. Therefore, the rejection of claim 13 has been withdrawn.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zulmariam Mendez whose telephone number is 571-272-9805. The examiner can normally be reached on Monday-Thursday, 8:30am-5:00pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571-272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ZM 3/31

ALEXA D. NECKEL
SUPERVISORY PATENT EXAMINER